Basic Differentiation Rules Homework Name _____

Use the rules of differentiation to find the derivative of the function.

1. $y = 14$

2. $y = x^9$

3. $y = \frac{1}{x^4}$

4. $y = \sqrt[3]{x}$

5. $f(x) = 2x - 7$

6. $f(x) = 3x^2 + 4x - 5$

7. $y = -5t^2 + 4t - 3$

8. $g(x) = 9\sin x - 2x^3$

9. $y = 4x - \sqrt{x}$

10. $s(t) = t^3 + 6t^2 - 2t + 9$

11. $h(x) = x(x^3 - 1)$

12. $f(x) = \cos x - \frac{3}{x^3}$

13. $y = (2x - 3)^2$

14. $g(x) = (3x + 4)(x - 5)$

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Use algebraic techniques to rewrite each function. Then, find the derivative. Answers should have single term denominators when possible.

15. $f(x) = 2\sin x + \frac{1}{x^2}$

16. $y = \frac{5x^3+7x^2}{x}$

17. $y = \frac{3x^2+2x-1}{x}$

18. $g(x) = \frac{x^3+5x^2+2}{x^2}$

19. $f(x) = \sqrt{x} + 9\sqrt[3]{x}$

20. $f(x) = \sqrt{x} - \sqrt[3]{x}$

21. $s(t) = t^{3/4} - t^{1/3}$

22. $g(x) = x^{2/3} + x^{1/3} + 2\sin x$

23. $h(x) = \frac{x - 6\sqrt{x}}{3x}$

24. $y = \frac{x^3-8}{x-2}$

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